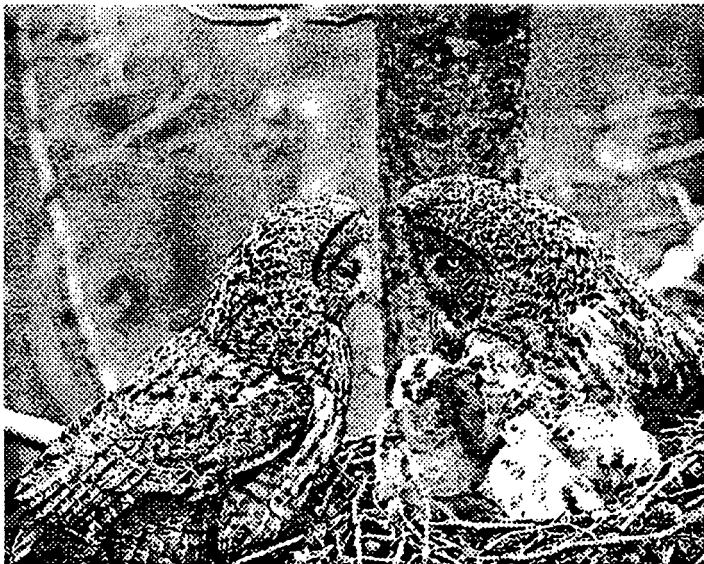
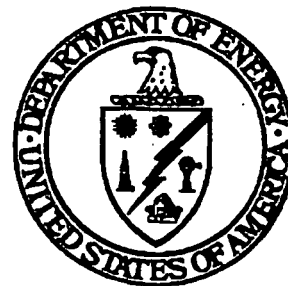


25168

Environmental Restoration Program



Monthly
Report for
January 1993



Rocky Flats Office

February 20, 1993

Reviewed for Classification/UCNI
BY W. J. K. [signature] (U) [initials]
DATE 2/16/93

ADMINISTRATIVE

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A-SW-001418

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EXECUTIVE SUMMARY

SIGNIFICANT ACTIVITIES AND ACHIEVEMENTS FOR JANUARY 1993

In Operable Unit (OU) 1, the survey to define the radionuclide hot spot on the 881 Hillside was concluded. Results are still being analyzed. The cleanup of the acid spill that occurred on December 21, 1992, in the 891 treatment building was also completed.

The OU 2 January 12, 1993, Inter-Agency Agreement (IAG) milestone for submittal of deliverables including: the Final Pilot Test Plan, In situ Volatilization Technology, the Final Soil Vapor Survey Work Plan, and the Response to Comments, was met.

In OU 4, Solar Ponds Remediation Program (SPRP) personnel presented the regular monthly briefing to DOE Headquarters (HQ) in Washington D.C. An update was also presented on the systems analysis for pond sludge processing options. This analysis will identify the preferred path forward for OU 4 activities.

The Environmental Restoration Program has been identified as a Major System Acquisition (MSA) under DOE Order 4700.1 Project Management System (PMS). A DOE HQ Project Plan, a DOE, Rocky Flats Office (RFO) Project Management Plan, and an EG&G Environmental Restoration (ER) Project Management Plan have been drafted as the start of activities to implement 4700.1. The Solar Ponds activity has been identified as the prototype activity for this implementation. It will be configured as a subproject under the ER MSA and SPRP technical, schedule, and cost baselines, are being prepared as examples for the rest of the DOE Complex.

The Statement of Work for the Industrial Area integrated field activities was completed, reviewed, and sent to EG&G Procurement. This is a critical step in the plan to integrate activities within OUs 8, 9, 10, 12, 13, and 14.

DOE and EG&G have developed a proposal to condense the remedial investigation of OU 11, West Spray Field, into one phase. Overall, cost to the project would be significantly decreased as a result of combining the phases and thus reducing multiple contract procurement cycles, field mobilizations, and field investigations. The outline of this proposal was supported by CDH and DOE. The proposal is under DOE review.

The current analytical sample analysis backlog is estimated to be zero by April 1993. In the past 7 months, several enhancements have been implemented to correct identified deficiencies in the ER sample management process and in the Rocky Flats Environmental Data System (RFEDS). Sample management staff has been enhanced, and the pool of qualified laboratories for radionuclides analysis has been increased by four. These efforts have resulted in an increase in laboratory capacity, a decrease in sample backlog, and, in the case of one laboratory, a decrease in laboratory turnaround time from 120-180 days to 61-75 days.

PROBLEMS AND PROGRAMMATIC ISSUES

**Procurement and
Quality Action Team
Status**

The EG&G Quality Action Team (QAT) Working Group published an action plan in December 1992. During January, the Working group implemented the actions outlined in the action plan.

Accomplishments during January were as follows:

- 1) In response to QAT recommendation No. 5, streamlining the procurement process, all EG&G functions were requested to re-evaluate the signature requirements outlined in Appendix 5 to Plant Procedure 1-46000-PROC-001, "Requisitioning Items and Services." If the value added by a particular approval requirement cannot be substantiated, the requirement will be eliminated.
- 2) In response to recommendation No. 8, choosing a subcontractor, a letter explaining the Master Task Subcontract (MTS) rotation clause and subcontractor selection process was distributed to all users of the Environmental and Waste Management MTS. The letter outlines the acceptable justification for the use of a subcontractor outside the normal task rotation.
- 3) Not related to a specific QAT recommendation but key to the overall effective administration of the MTS, the Working Group reviewed, approved, and implemented a MTS Performance Evaluation form. This form will be completed every 90 days during the life of an MTS subcontract by both the Contract Technical Representative (CTR) and the Subcontract Administrator (SA). Not only will this form provide a permanent record of subcontractor performance, but it will be utilized in the pre-award analysis of subcontractors being considered for award of subsequent work.

Other

In OU 1, a posting of a plutonium "hot spot" was completed. This hot spot was not detected during the remedial investigation (RI) field work because of the small, discrete area contaminated. It was detected during a random survey of the 881 Hillside during construction work. A plan is being finalized to conduct further surveys to verify that no other hot spots exist on the hillside.

A formal request for an extension from the regulatory agencies on the OU 2 Draft Phase II RCRA Facilities Investigation (RFI)/RI Report is being prepared by DOE because the issue of including the Bedrock Field program into the Draft and Final Report has not been resolved. The Draft RI Report is due March 12, 1993.

OU 3 offsite landowners are still being contacted for surface soil sampling sites. Several landowners have denied access to

their property. When access is denied, it is necessary to identify a new sampling location and to contact a new landowner for access to that property. Significant schedule impacts have resulted from the slow pace of obtaining Use Agreements from offsite landowners. The July 16, 1993, IAG Milestone for submittal of the Draft Phase I RFI/RI Report will require an extension due to delays in completing the field work.

DOE received a letter from the regulatory agencies linking the Interim Measure (IM)/Interim Remedial Action (IRA) for treatment of the Solar Ponds "excess water" and Interceptor Trench System (ITS) water to the IAG. The regulatory agencies indicated that schedule delays in diverting interceptor trench water constitute a failure to comply with the IAG and requested a revised schedule. DOE believes that the regulatory agencies are in error, since the IM/IRA Decision Document for the trench water diversion states that it is not part of the IAG and that pondcrete operations are addressed in the Agreement in Principle (AIP), not the IAG. DOE prepared a draft response that clarified the status of the trench water diversion and provided schedule information requested by the regulatory agencies. The schedule represents DOE's commitment, based on an intensive planning effort involving numerous plant organizations. DOE expects to begin the trench water diversion on April 16, 1993, and to begin full evaporator operation on September 9, 1993. However, these dates are dependent on a number of key assumptions, several of which concern the ability of the regulatory agencies and DOE to adhere to schedule milestones for their activities.

DOE and the regulatory agencies are discussing a plan to integrate characterization activities within the Industrial Area (IA). This plan will impact scheduled field work activities in OUs 8, 9, 10, 12, 13, and 14.

NEAR-TERM IAG MILESTONES

<u>OU</u>	<u>Milestone Description</u>	<u>Due to EPA/CDH</u>
2	Submit Subsurface Final IM/IRA Test Plan 1	Jan 12, 1993
Sitewide	Annual Treatability Study Report	Mar 8, 1993
2	Draft Phase II RFI/RI Report	Mar 12, 1993
1	Draft Corrective Measures Study (CMS)/Feasibility Study (FS) Report	Mar 31, 1993 **
1	Submit Final Phase III RFI/RI Report	April 2, 1993

*****EPA and CDH approved an extension on the OU 1 Draft CMS/FS to June 29, 1993.***

SECTION 1. INTRODUCTION

This monthly status report presents the current status and technical achievements of the Rocky Flats Environmental Restoration Program for January 1993. This program implements the Interagency Agreement (IAG) among the U.S. Department of Energy, the U.S. Environmental Protection Agency (EPA), and the State of Colorado to investigate, assess, and remediate, where necessary, contaminated areas at or adjacent to DOE's Rocky Flats Plant in Golden, Colorado. This agreement was signed on January 22, 1991. The work is being performed for DOE by EG&G Rocky Flats, Inc.

Technical progress, schedule status, and milestone status for each OU as well as other program activities are presented in Section 2. Section 3. contains the schedules for routine environmental sampling as required by Paragraph 210 of the Interagency Agreement. Section 4. contains a list that identifies the contractors and subcontractors performing work on the program as required by Paragraph 13 of the IAG.

SECTION 2. PROJECT STATUS

2.1 OU 1 - 881 HILLSIDE AREA

The alluvial ground water at the 881 Hillside Area, located north of Woman Creek in the south-east section of RFP, was contaminated in the 1960s and 1970s with solvents and radionuclides. The area is almost 2 miles from the eastern, outer edge of the plant's buffer zone at Indiana Street. The various Individual Hazardous Substance Sites (IHSS) that make up OU 1 were being investigated and treated as high-priority sites because of potentially elevated concentrations of organic compounds in the near-surface ground water and the proximity of the contamination to a drainage system leading to an offsite drinking water supply. The selected Interim Remedial Action (IRA) at OU 1 involved construction of an underground drainage system called a French drain that intercepts and contains near-surface ground water flowing from the OU 1 area. The near-surface water is treated at the 891 treatment facility, designed for this purpose, and released onsite into the South Interceptor Ditch alongside Woman Creek. IRA construction was completed in April 1992. The Remedial Investigation and Feasibility Study (RI/FS) to determine the final remedial action are continuing in parallel with the IRA.

2.1.1 OU 1 ASSESSMENT

Scope of Work Changes This Period None

Technical Approach Changes This Period None

IAG Milestone	Submit Draft Phase III RFI/RI Work Plan	06 Feb 90
Accomplishments	Submit Final Phase III RFI/RI Work Plan	31 Oct 90
	Submit Draft Phase III RFI/RI Report	28 Oct 92

January Work Activity Status The field survey to define the radionuclide hot spots on the OU 1 881 Hillside began December 15, 1992, and concluded January 22, 1992. Results of these field surveys are being analyzed. Preliminary conclusions show that some follow-up surveys with the High Purity Germanium (HPGe) sampler in IHSSs 119.1 and 119.2 are required. This work was initiated due to the discovery of a hot spot on the 881 Hillside after completion of the draft Remedial Investigation (RI) Report.

Technical Memorandum (TM) #10, Remedial Action Objectives, was not submitted to the regulatory agencies in mid-January as originally anticipated. DOE delayed the TM after receiving the comments from the regulatory agencies on the RI Report realizing it would be more productive to submit TM 10 after RI Report comments regarding policies and procedures were resolved.

DOE, Rocky Flats Plant

Planned Work for February

- Follow-up surveys with the HPGe sampler in IHSSs 119.1, 119.2, and 130.
- Begin responding to EPA and CDH comments on the RI Report.

Problems

A letter from the U.S. Fish & Wildlife Service (USFWS) to EPA concerning the USFWS position on the Environmental Evaluation (EE) work was received by DOE. USFWS believes the EE section of the report is incomplete and inadequate. DOE believes the EE work was completed in a technically sound manner with regulatory agency occurrence on the approach. The EE was completed before EPA guidance on the approach was finalized. If EPA supports the USFWS position, the OU 1 EE will be completely compromised.

Open Items

None

2.1.2 OU 1 REMEDIATION

Scope of Work Changes This Period None

Technical Approach Changes This Period None

IAG Milestone Accomplishments

Submit Draft Proposed IM/IRA Decision Document	18 Sep 89
Submit Proposed IM/IRA Decision Document	06 Oct 89
Submit Final IM/IRA Decision Document	05 Jan 90
Begin Phase I-A IM/IRA Construction	15 Jan 90
Restart Phase I-A IM/IRA Construction (after shutdown)	20 Jun 90
Begin Phase I-B IM/IRA Construction (ahead of schedule)	28 Sep 90
Submit IM/IRA Implementation Document	22 Feb 91
Begin Phase II-A IM/IRA Construction	01 Apr 91
Begin IM/IRA Testing	05 Aug 91
Begin Phase II-B IM/IRA Construction	03 Sep 91
Complete IM/IRA Construction (Bldg. 891)	02 Mar 92
Complete IM/IRA Construction (French drain)	13 Apr 92

January Work Activity Status

Approximately 80,000 gallons of water was treated during the month of January 1993. Treated effluent Tank 207 was discharged into the South Interceptor Ditch (SID) on January 19, 1993. Effluent Tank 205 remains empty, and Tank 206 is approximately 25 percent full.

The total water collected to date is approximately 867,700 gallons; total discharged treated water is approximately 800,500 gallons.

DOE has initiated additional work on the 881 Hillside. This work includes French drain collection well #CW 001, flow

meter installation, Building 881 footing drain piping modifications, collection well piping modifications, and additional revegetation on the 881 Hillside including wetland expansion and tree planting. Design work started in January on the 881 Hillside French drain surface water monitoring stations.

Comments on the revisions to the Health and Safety Plan (H&SP) and Sampling and Analysis Plan (SAP) were incorporated in January. The final Operations and Maintenance (O&M) manual for the OU 1 IM/IRA was completed mid-January. Standard Operating Procedures (SOPs) for the treatment facility were reviewed in January, and comments were being incorporated into the SOPs at the end of the month.

An acid tank overflow occurred in Building 891 on December 21, 1992. Cleanup inside Building 891 was completed in January. All Hydrochloric Acid (HCl) from the spill has been transferred back into Acid Tank 209. The remaining water in Neutralization Tank 210 has been neutralized and will be transferred to the Building 374 evaporator. Four drums of solid, neutralized HCl remain in Building 891 and upon approval will be disposed of at the landfill. After standing water has been removed from the drums, the landfill will accept the neutralized HCl. Two drums are pending approval for the landfill.

Planned Work for
February

- Continue treatment system operations
- Begin installation of gamma sensor unit

Problems

None

Open Items

None

2.2 OU 2 - 903 PAD, MOUND, AND EAST TRENCHES

The contamination at the 903 Pad and Mound areas is largely attributed to the storage in the 1950s and 1960s of waste drums that corroded over time, allowing hazardous and radioactive material to leak into the surrounding soil. Additional contamination may have resulted from wind dispersion during drum removal and soil movement activities. The East Trenches Area was used for disposal of plutonium- and uranium-contaminated waste and sanitary sewage sludge from 1954 to 1968. Two areas adjacent to the trenches were used for spray irrigation of sewage treatment plant effluent, some of which may have contaminants that were not removed by the treatment system.

An IM/IRA provides for surface water in source areas of contamination to be collected, treated, and discharged to the surface water drainage. Operation of a field-scale treatability unit for the South Walnut Creek drainage began in May 1991. The effectiveness of the treatment process will be evaluated at three locations: the entrance to the treatment facility, several points within the facility, and the discharge point. After completion of the field-scale treatability tests, the unit is anticipated to remain in service until the final remedial action is operational. The RI and FS are continuing in parallel with the IRA.

A second IM/IRA was established in late-1991. This Subsurface Investigation Interim Measure/Interim Remedial Action Plan/Environmental Assessment (IM/IRAP/EA) is north of Woman Creek and encompasses the 903 Pad, the Mound Area, and the East Trenches Area of OU 2. This IM/IRAP/EA identifies and evaluates interim remedial actions for removal of residual free-phase Volatile Organic Compound (VOC) contamination from three distinct subsurface environments at OU 2. Each of the VOC-removal actions involve *in situ*, vacuum-enhanced, vapor extraction technology. The interim remedial actions are for the collection of information that will aid in the selection and design of final remedial actions that address subsurface, residual, free-phase VOC contamination at OU 2.

2.2.1 OU 2 Assessment

Scope of Work Changes None
This Period

Technical Approach None
Changes This Period

IAG Milestone	Submit Draft Phase II RFI/RI Work Plan (Alluvial)	21 Dec 89
Accomplishments	Submit Final Phase II RFI/RI Work Plan (Alluvial)	12 Apr 90
	Submit Draft Phase II RFI/RI Work Plan (Bedrock)	05 Feb 91
	Submit Final Phase II RFI/RI Work Plan (Bedrock)	02 Jul 91
	Submit Subsurface Site I Draft Test Plan	29 Oct 92
	Submit Subsurface Site I Final Test Plan	12 Jan 93

January Work Activity Status	DOE is submitting to the regulatory agencies an extension request on the submittal of the OU 2 Phase II RI Report and is investigating options for rescheduling the other OU 2 IAG milestones, including no further action on the bedrock program. DOE is also considering splitting out the bedrock program into its own CERCLA schedule that would include the Corrective Action Decision/ Record of Decision (CAD/ROD) and a reduced scope field program. Cost and schedule
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impacts of the various options are now being evaluated. Once each option is evaluated, a presentation date with the regulatory agencies will be set.

A presentation was given to DOE and an independent technical reviewer on the technical approach for revision of the Phase II RFI/RI Bedrock Work Plan. Independent review comments state that the technical approach is excellent and uses DOE's "Observational Approach" correctly.

TM #7, Surficial Soil Sampling, is complete and was delivered to the regulatory agencies. This TM addresses the collection and analysis of the surficial soils at OU 2 for the Human Health Risk Assessment (HHRA). Technical discussion concerning the use of existing germanium probe data determined that the data would not be of sufficient quality necessary for the HHRA. The regulatory agencies have given conditional approval for TM #7. Approval was contingent upon resolution of two comments received from CDH. The comments should not impact implementation of TM #7. Field crews will mobilize during early February.

DOE is waiting for comments from the regulatory agencies on the Exposure Scenario and Modeling TMs for the OU 2 HHRA. The Draft Final of the Exposure Scenario and Modeling TMs were submitted to the regulatory agencies on January 25, 1993, and comments are due back by February 12, 1993. Work is continuing on development of the Contaminants of Concern (COC) TM for the HHRA.

Work is continuing on the RI Report site characterization and the nature and extent of contamination. A "Super Task" sub-contract Statement of Work (SOW) was initiated on January 27, 1993, for completion of the Draft RI Report. The SOW is moving through the procurement process.

**Planned Work for
February**

Work will continue on the development of the COC TM. A presentation of preliminary COC identification will be given to EPA and CDH.

Field implementation of TM #7, will occur during February.

TM #8, The Revised Phase II RFI/RI Bedrock Work Plan, will be developed. The TM is expected to be presented to EPA and CDH on February 18, 1993, and submitted in draft form during early March.

Comments will be resolved on TMs #5 and #6. The TMs will be issued as final.

A presentation to the Technical Review Group (TRG) on TM #5, #6, and #7 is scheduled for February 25, 1993.

The "Super Task" bid package should be out during February. This contract covers the work from the FS to the ROD.

Work will continue on the Phase I RFI/RI Report site characterization and nature and extent of contamination.

Problems

The March 12, 1993, IAG Milestone for submittal of the Draft Phase II RFI/RI Report will require an extension or modification due to delays in implementing the Bedrock portion of the field work.

Open Items

None

2.2.2 OU 2 Remediation

Scope of Work Changes This Period

None

Technical Approach Changes This Period

None

IAG Milestone Accomplishments

Submit Draft Proposed IM/IRA Decision Document	19 Jun 90
Submit Proposed Plan IM/IRA Decision Document	18 Sep 90
Submit Draft Responsiveness Summary	13 Dec 90
Submit Final Responsiveness Summary and Final IM/IRA Decision Document	11 Jan 91
Field Treatability Test System Installation Complete	10 May 91
Begin Field Treatability Testing (Carbon System)	13 May 91
Submit Draft Treatability Test Report (Phase I GAC)	01 Apr 92
Complete IM/IRA Construction (radionuclides removal system)	24 Apr 92
Begin Field Treatability Testing (radionuclides removal system)	27 Apr 92
Submit Final Treatability Test Report (Phase I GAC)	02 Jun 92

January Work Activity Status

The Field Treatability Unit (FTU) collected, treated, and discharged approximately 500,000 gallons of surface water during January 1993. Operation has been normal and without problems. Influent flows to the system have remained normal. The membrane filter was cleaned on December 29, 1992. No problems were experienced. The normal frequency for cleaning the membrane is once every 2 weeks. Process flows are holding very well. A cleaning will not be done until the treatment production drops and cleaning becomes necessary to determine if the cleaning period can be extended routinely.

One drum of sludge was processed on January 7, 1993. Samples were obtained and were sent to an offsite laboratory for analysis on January 14, 1993. White drums are being used

to package the sludge and compliance with RCRA requirements for packaging and storage are being met.

The granular activated carbon (GAC) Cyclesorb units located in the GAC trailer were reconfigured on January 20, 1993. Fresh units are expected to provide approximately 4 months of organic contaminant treatment capability.

A turbidity meter has been installed at the FTU and is connected to the influent line to the chemical precipitation system. The meter will provide information that will help maximize the efficiency of the system as it relates to chemical usage and the microfilter operation.

Subsurface IM/IRA - The January 12, 1993, IAG milestone for delivery of the Final Pilot Test Plan, In situ Volatilization Technology, the Final Soil Vapor Survey Work Plan, and the Response to Comments, was met.

The SOW for the Soil Vapor Survey work was completed this month. Review of the proposal by technical personnel began during the week ending January 29, 1993, and the final contract should be released in early February.

Proposals for the installation of the Vapor Extraction Unit build-out are still being prepared. Bids are due back on February 5, 1993. Technical evaluations of each proposal will follow.

Procurement of the Mobile Vapor Extraction Unit is ahead of schedule. Bids are due back on February 5, 1993. Technical evaluations of each proposal will follow.

Planned Work for February

Routine operation will continue in February. This will include water sampling to characterize the process, sludge processing, sampling and package, and monitoring and operating the system in accordance with requirements.

Preliminary preparation of analytical data for writing the Phase II Treatability Study Report will continue in February. This will include preparing a detailed outline. The task of facilitating a final installation at SW132 will be continued. Project completion is expected by April 1, 1993, and would include design, approval, fabrication, installation, and startup.

The four empty Cyclesorb units from the Phase I system are expected to be cleaned and refilled with regenerated GAC. These four units would then be ready to place into service when existing units are spent.

Problems

Ten to 20 gallons of diesel fuel were spilled at the project site on January 14, 1993. The spill was contained to an area about 25 X 5 feet. The affected soil area was sampled (currently awaiting results), removed, and packaged into drums. The affected soil is being stored as a RCRA waste in an adjacent 90-Day Accumulation Area set up specifically for this material. No waterways or drainage ditches were endangered, and the spill was not within an IHSS. A critique was conducted on January 15, 1993, and minutes were prepared. The spill has been cleaned up, and the 14 drums of cleanup material are being stored in a 90-day RCRA Accumulation Area awaiting validated analytical results from the samples obtained.

Subsurface IM/IRA - Award subcontract for fabrication of the mobile vapor extraction unit.

Award subcontract for the soil vapor survey.

Put SOW for well installation, test setup, and testing of soil vapor extraction (SVE) out for bid.

Open Items

None

2.3 OU 3 - OFFSITE AREAS

OU 3 can be divided into two categories based on two main activities. The IAG directs activities according to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This involves assessment of contamination in offsite areas also referred to as IHSS: Contamination of the Land Surface (IHSS 199), Great Western Reservoir (IHSS 200), Standley Lake (IHSS 201), and Mower Reservoir (IHSS 202). The second category responds to a 1985 out-of-court lawsuit settlement, McKay vs. U.S., which directed that the surface soil contamination be remediated. Remedial activities in compliance with the Settlement Agreement (deep disc plowing) began in 1985. The disturbance resulting from remediation is being revegetated with mediocre success. The overall schedule for this activity is determined by the year-to-year success of the revegetation effort and requirements of the landowners.

Scope of Work Changes None
This Period

Technical Approach None
Changes This Period

IAG Milestone	Submit Draft Past Remedy Report	26 Oct 90
Accomplishments	Submit Draft Historical Information/ Preliminary Health Risk Assessment Report	09 Nov 90
	Submit Final Past Remedy Report	02 Apr 91
	Submit Final Historical Information/ Preliminary Health Risk Assessment Report	16 Apr 91
	Submit Draft Phase I RFI/RI Work Plan	10 Jul 91
	Submit Final Phase I RFI/RI Work Plan	06 Dec 91

January Work Activity
Status

Eleven surface soil sampling locations were staked in early January. Surface soil sampling that was on hold due to the persistent snow cover, resumed January 26, 1993.

Offsite landowners are still being contacted for surface soil sampling sites. Negotiations are currently underway with owners for 19 locations which should result in completed agreements. Six other locations require finding alternate sites as the first, second, and sometimes third landowner for the same sample location has declined access.

The two monitoring wells planned for OU 3 were drilled in December, but could not be completed and sampled until the temperature conditions improved. One well below Standley Lake Dam detected a small fracture zone and is producing a positive surface pressure flow of about 1 gallon per minute. Due to weather conditions earlier in December, the water on the lake froze and samples could not be taken until the ice melted. The temperature conditions moderated near the end of December, and the first quarterly samples were collected.

Plans for construction of offsite air and meteorological monitoring sites are undergoing engineering review. The existing

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design to build a fence for protecting the monitoring equipment is almost through the review cycle.

Planned Work for February

If weather permits, surface soil sampling will continue as well as work on the Air Monitoring Program.

Problems

The July 16, 1993, IAG Milestone for submittal of the Draft Phase I RFI/RI Report will require an extension due to delays in completing the field work.

Open Items

None

2.4 OU 4 - SOLAR EVAPORATION PONDS

OU 4 is made up of five solar evaporation ponds: 207A, 207B series (north, center, south), and 207C. Beginning in the late 1950s, the ponds were used to store and evaporate low-level radioactive process water containing high concentrations of nitrates and treated acidic wastes. The sludge and sediments that resulted from the process were periodically removed and disposed of at the Nevada Test Site.

As technology improved through the early 1960s and 1970s, the ponds were relined with various upgraded materials. However, leakage from the ponds into the soil and ground water was detected. Interceptor trenches were installed in 1971 to collect and recycle ground water contaminated by the ponds and to prevent natural seepage and pond leakage from entering North Walnut Creek. In 1981, these trenches were replaced by the current, larger interceptor trench system, which recycles approximately four million gallons of ground water a year back into the solar evaporation ponds.

No additional process water has been pumped into the ponds since 1983. The interceptor trench system collects and recycles ground water into the solar evaporation ponds continuously. Presently, only the 207B north solar evaporation pond receives contaminated ground water collected by the interceptor system. The ponds are RCRA interim status regulated units that are currently under closure. In order to proceed and characterize the level of contamination at the site, approximately eight million gallons of excess liquid in the ponds must be removed. The removal of this liquid and the redirection and treatment of the ground water by the interceptor trench system are the focus of the final IM/IRA dated April 1992, which began construction in May 1992.

The April 1992 IM/IRA was developed as a regulatory agency requirement that was out of scope and not part of the tasks outlined in the Interagency Agreement (IAG). DOE attempted to modify an existing permit for water removal and treatment for liquids in the solar ponds and ground water collected by the interceptor trench system, but the regulatory agencies rejected permit modification and required development of an IM/IRA to document operation and use of the proposed water treatment system. The development and implementation of this IM/IRA precedes the IAG scheduled Phase I RFI/RI field work.

There is an IM/IRA scheduled in the IAG that will be completed after results are collected and analyzed from the Phase I RFI/RI field work. The first draft of the IAG IM/IRA is scheduled for delivery in April 1994.

2.4.1 OU 4 ASSESSMENT

Scope of Work Changes None
This Period

Technical Approach None
Changes This Period

IAG Milestone	Submit Draft Phase I RFI/RI Work Plan	08 Jun 90
Accomplishments	Submit Final Phase I RFI/RI Work Plan	26 Nov 91

January Work Activity Status	The following boreholes were drilled and completed in the Buffer Zone: Borehole 40093 was drilled to a total depth (TD)
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of 14.2 feet, bedrock was encountered at approximately 8.4 feet, and ground water was not encountered; Borehole 44798 was drilled to a TD of 12.0 feet, bedrock was encountered at approximately 6.0 feet, and ground water was not encountered; Borehole 44893 was drilled and completed to a TD of 22.0 feet, bedrock was encountered at approximately 14.7 feet, and ground water was not encountered. A piezometer was installed in Borehole 44893; Boreholes 40493 and 44693 were both in bedrock, and, consequently, no analytical samples were collected and submitted. Drilling at Boreholes 40493 and 44693 was completed to a depth greater than 6 feet below grade in order to eliminate the possibility of bedrock slumping.

Borehole 40193 was drilled to a TD of 26 feet, and bedrock was encountered at 22 feet. This RFI/RI borehole was converted to a piezometer. Ground water was not detected during drilling; however, ground water has recharged and infiltrated this borehole and has been measured at approximately 13 feet. Monitoring of the ground water elevation will continue. An 8-inch surface casing was set at Borehole 44193 from the ground surface to approximately 15 feet below grade to prevent ground water communication between the alluvium and bedrock contact. The casing was grouted using a combination of bentonite and cement. A locking seal was installed on this borehole the week of January 11, 1993. One of the objectives of this borehole is to locate and identify the Arapahoe "sands" potentially below the Arapahoe "claystone" as a migratory pathway for contaminants. This geologic unit is expected to be 45 to 60 feet below grade.

Boreholes 40093, 44993, and 4529 were drilled and completed. Piezometers were installed in Boreholes 44993 and 45293. Additionally, a permeability measurement was collected at the upper bedrock surface for Borehole 40293, and a lysimeter was also installed.

Two piezometer boreholes were drilled and completed in the Buffer Zone (PZ-02). The boreholes are dry at the alluvial/bedrock contact; thus, the additional four piezometers for this "nest" will not be drilled and completed at this time. The piezometers will be monitored on a weekly basis through June, and in the event water is detected and measured, the additional four piezometers will be drilled and completed at that time. CDH has given verbal concurrence to this approach.

Boreholes 42093, 41993, 41993, and 42993 were drilled and completed in the Protected Area (PA). Borehole 42093 was drilled and completed to a TD of 10.0 feet, bedrock was encountered at approximately 4.8 feet, and ground water was not encountered. Borehole 41993 was drilled and completed to a TD of 20.0 feet, bedrock was encountered at approximately 14.5 feet, and ground water was not encountered. A

piezometer will be installed in Borehole 41993. Ground water was encountered in Borehole 42993 at approximately 17.8 feet, and a piezometer will be installed. A piezometer was installed in Borehole 41993.

Preliminary borehole locations were identified adjacent to the 207-B Series Ponds. An OU 4 drilling TM will be prepared to reflect this change. All locations were cleared by EG&G Construction Management. A revised draft borehole location map that includes the new borehole locations was developed for review and approval.

Planned Work for February	Continue assessment drilling activities
Problems	None
Open Items	None

2.4.2 OU 4 REMEDIATION

Scope of Work Changes This Period	None
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Technical Approach Changes This Period	None
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IAG Milestone Accomplishments	None. The first IAG remediation milestone for this OU is the Draft Phase I Proposed IM/IRA Decision Document scheduled for April 14, 1994.
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January Work Activity Status	<p>Program Management/Administration- The Solar Ponds Remediation Project (SPRP) office plans to use the Building 374 evaporator to treat water from the Interceptor Trench System (ITS). An existing waste transfer line is available to transfer trench water to Building 374, but concerns arose over the adequacy of secondary containment for the line. Working with operations and RCRA program staff, a plan was developed that includes repairs and compensatory measures to allow the line to be used. A letter requesting DOE approval of the compensatory measures is being prepared by EG&G.</p>
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DOE received a letter from the regulatory agencies linking the IM/IRA for treatment of the Solar Ponds "excess water" and ITS water to the IAG. The regulatory agencies indicated that schedule delays in diverting interceptor trench water constitute a failure to comply with the IAG and requested a revised schedule. EG&G believes that the regulatory agencies are in error, since the IM/IRA Decision Document for the trench water diversion states that it is not part of the IAG and that pondcrete operations are addressed in the Agreement in Principle (AIP), not the IAG. RFO prepared a draft response

that clarified the status of the trench water diversion and provided schedule information requested by the regulatory agencies. The schedule represents EG&G's commitment, based on an intensive planning effort involving numerous plant organizations. EG&G expects to begin the trench water diversion on April 16, 1993, and to begin full evaporator operation on September 9, 1993. However, these dates are dependent on a number of key assumptions, several of which concern the ability of the regulatory agencies and DOE to adhere to schedule milestones for their activities.

DOE also received a letter from the regulatory agencies requesting an evaluation of the use of Building 374 to treat pond sludges, the cessation of cementing current Building 374 waste salt, and the storage of Pond 207B sludge and debris in a pond with liner improvements. These options were discussed by DOE with the regulatory agencies in previous meetings during which the regulators seemed open to alternatives for pond sludge management. EG&G is preparing the requested information and determining the potential cost and schedule impacts.

Pad Ops and Storage - RFP Waste Operations has submitted a storage density study, which concludes that the most prudent storage technique is rebagging all triwall boxes and stacking them in a layout that appears to satisfy RCRA requirements. Issues remain concerning the relevance of DOT containers and the necessary level of access provided by the proposed aisle space. A meeting will be held to resolve this issue.

Tent 12 erection is nearly complete. Only minor tasks (i.e., signage) remain. A 4-inch abrasion of the door fabric occurred during installation of the west door. The abrasion was patched in accordance with the manufacturer's instructions.

Sludge Processing / Halliburton-NUS - The Bldg. 374 Value Engineering (VE) Team was assembled and their effort was initiated. Tours of the ponds and Building 374 were conducted. Information gathering was completed January 15, 1993, and the formal VE study was finished. The outbrief on January 22, 1993, presented the following seven most desirable approaches that might be investigated in more detail:

- Store sludge in D231 tanks.
- Store sludge in tanks outside the PA.
- Store sludge in railroad tanker cars.
- Store sludge in relined ponds.
- Dry sludge adjacent to ponds, store dried sludge in containers for eventual processing, take effluent liquid to Bldg 374.
- Dry sludge in Bldg. 374 and store dried sludge.
- Remove contaminants chemically.

The final written VE report will be ready February 5, 1993. Analysis of several proposed options are pursued.

On January 15, 1993, a meeting was held with Applied Environmental to investigate the feasibility of an option to treat and dispose *in situ* both sludge and OU 4 subsoils.

The first Scope & Estimate (S&E) for a relined pond option was completed. Project engineering and construction costs were estimated at \$3.5M and operations and support costs were estimated at \$2.3M. Total implementation cost \$5.8M. Annual maintenance costs (TBD) are additive.

The second S&E, for above ground open tanks to store pond-sludge, was also finished. Project engineering and construction costs are estimated at \$3M; operations and support costs are estimated at \$2.5M.

Water Management - The Temporary Modular Storage Tank (TMST) suction lines, damaged in a previous freeze incident, have been repaired. During the course of the repair, the lines were modified to allow their removal from the tanks to prevent a recurrence of the incident. This repair was performed 10 days ahead of schedule and allows an early start of systems operations (SO) testing of the TMSTs and the water transfer system to Building 910.

Orifice plates and sonic level probes were installed in the distillate system in Building 910. The completion of this work allowed continuation of SO testing of the system. The pump motors continue to draw excessive, though diminished, current, indicating that the new orifice plates have not yet solved the problem. Engineering will investigate additional solutions.

A detailed, comprehensive schedule has been prepared for all work necessary to bring the Building 910 evaporators online. This resource-loaded schedule will be used to aggressively manage the work to ensure completion of the project in accordance with commitments to the regulatory agencies. The schedule was presented to all organizations involved, and a commitment to the schedule objectives was secured. The EG&G General Manager will be briefed prior to full schedule implementation.

A Modutank representative arrived on site January 12, 1993, to confirm the TMST leak. Investigation revealed water in the sumps of all three tanks. Water samples were taken from all tanks and all sumps on January 14, 1993, and submitted for chemical analysis. The analysis results were inconclusive and could not prove or disprove that the sump water came from the tanks. Meanwhile, the vendor was instructed to begin repair operations. EG&G will resume recirculation efforts and

may have two tanks melted and emptied by the time the vendor arrives.

The construction technique required to install the Ultra-Violet (UV) membrane directly over the 80-mil liner in the modular tanks may have caused leaks. The presence of the UV membrane results in the inability to test the 80-mil liner's gross integrity. EG&G will produce a cost/benefit-advantage/disadvantage analysis associated with the removal of the 20-mil liner. Discussions have been held between Procurement, Facilities Project Management (FPM), and the Vendor to determine cost liabilities for the TMST repair. FPM will produce a written synopsis of those discussions.

The current period of extremely cold weather has thwarted all efforts to reduce ice volume in the modular tanks. Ice and water must be removed prior to any repair efforts. Engineering and Technology have developed a thermal model of the tanks to allow analysis of the effect of various options.

A schedule for the correction of RCRA deficiencies associated with the reverse flow line from Building 774 to Building 374 has been developed by the organization responsible for correcting the deficiencies, Facility Management and Operations (FM&O). This line must be used to transport Interceptor Trench System (ITS) water to Building 374 for processing; therefore, its return to service must precede diversion of ITS water from the solar ponds. The schedule, as presented, still lacks commitment of required support organizations to performance as shown and approval by RCRA Regulatory Programs to ensure that the actions proposed will correct the deficiencies. FM&O has committed to supply a committed schedule and an action plan to the ITS Diversion Action Center by January 11, 1993.

Concern was raised by Utilities and Construction Management regarding the injection of product water into the plant raw water system. Utilities and Construction Management expressed concerns regarding the effectiveness of current methods of prevention of cross-contamination of domestic (potable) water system. Discussions held with Plant Utilities regarding injection of product water into the Plant Raw Water System (RWS) resulted in the development of the following two methods to solve the problem: either batch feed from Building 910 evaporator to the raw water system after analysis, or discharge B 910 product water to the Steam Plant instead of RWS.

The Short-Term Action Plan, Health and Safety Plan, Operation Safety Assessment, Tank Operating Procedures, and the Alarm Response Procedures for the modular tanks have all received final approval.

Construction of the new pipe line from Building 910 to the Above-Ground Transfer Line (AGTL) has been completed with the exception of the installation of the final valve box and the actual connection to the AGTL. This was accomplished 2 weeks early.

DOE has given a new date for HQ approval of the Safety Analysis Review (SAR), which is 31 days later (February 19, 1993) than originally committed (January 18, 1993). If tank repair is completed as rapidly as hoped, the SAR approval will be on the critical path that leads to the commitment completion date of April 16, 1993, for the ITS diversion.

Planned Work for February

- Complete Building 374 Value Engineering effort and generate the VE Report.
- Complete negotiations on the Halliburton NUS on Mod 11.
- Remove 20-mil liners from the Temporary Modular Storage Tanks (TMST).
- Perform hydrostatic testing of TMST.

Problems

None

Open Items

None

2.5 OU 5 - WOMAN CREEK

This activity encompasses assessment and remediation in the Woman Creek drainage of 10 IHSSs: Original Landfill (IHSS 115); Ash Pits (IHSS 133.1 - 133.4); Incinerator (IHSS 133.5); Concrete Wash Pad (IHSS 133.6); Detention Ponds C-1 and C-2 (IHSS 142.10 and 142.11); Surface Disturbance (IHSS 209), southeast of Building 881. Two additional surface disturbances have been identified: one south of the Ash Pits, and a second west of IHSS 209. These last two sites have been included in the OU 5 Work Plan. Possible contamination in this OU was caused by landfill operations, storm water run-off into holding ponds, and ash-pit operations. Constituents in OU 5 are believed to include nitrates, plutonium, uranium, metals, beryllium, solvents, pesticides, oils, paints, and cleaners. Media affected include soils, sediments, surface water, ground water, and air resuspension.

Scope of Work Changes This Period None

Technical Approach Changes This Period The technical scope of work in the OU 5 Work Plan is guided by TMs that detail the work to be done. Through January 31, 1993, three TMs have been unconditionally approved, and two more have been approved by EPA and CDH.

IAG Milestone	Submit Draft Phase I RFI/RI Work Plan	05 Apr 91
Accomplishments	Submit Final Phase I RFI/RI Work Plan	30 Aug 91

January Work Activity Status At a meeting held with the regulatory agencies on December 28, 1992, the interpretation of the aerial photos were discussed and the preliminary geophysical interpretation was reviewed. The Field Sampling Plan (FSP) at IHSS 209 was discussed, and a major topic was the reduction in the number of borings. The current Work Plan requires a total of 19 borings. The aerial photos on the surface disturbance identified two additional small excavation pits, and this brought the total number of borings to 23. The regulatory agencies agreed that the number of borings needed to be reevaluated. This reevaluation of the FSP will result in the issuance of TM #10. Also discussed were the number of borings to be completed at the IHSS 133 series. This issue will be addressed in TM #7, Soil Borings at the Ash Pits.

The second well below C1 Pond was completed on January 6, 1993. It was originally delayed because of the *Spiranthes diluvialis* (a threatened species) habitat issue, and then the weather added further delays.

Work on the HPGe survey at IHSS 133 was temporarily stopped because of snow melt, but the truck-mounted system was deployed late in January as the snow started to melt. Preliminary data from the HPGe survey was used to generate TM #4, Soil Sampling at IHSS 133 series. Draft Final TM #4 is scheduled for completion on February 12, 1993.

The field instrument for detection of low energy radiation (FIDLER) survey at IHSS 209 was delayed due to low tempera-

tures and snow in late December. By January 20, 1993, most of the snow from the December storms had melted and the FIDLER survey at IHSS 209 began.

Written unconditional approval was received from DOE and CDH for Draft TM #3, Surficial Soil Sampling at IHSS 115, on December 28, 1992. There was one caveat to the approval that needed to be addressed prior to preparation of the Phase I RFI/RI Report. The caveat was that the TM should explain how the collected surficial soil data will be compared to background values or how background values will be established. Surficial Soil Sampling at IHSS 115, the Old Landfill, began during the week ending January 22, 1993, and was completed on February 4, 1993.

Draft Final TM #5, Revised Soil Gas Sampling Plan - Original Landfill, was conditionally approved by CDH on January 20, 1993. A response to comments summary form and revisions are being made to the TM. Approval by EPA is contingent on responding to the CDH comments. Field activities are scheduled to begin on February 8, 1993, assuming final concurrence by the regulatory agencies is received.

Draft Final TM #6, Cone Penetration Testing and BAT Sampling - Original Landfill, was received by DOE on January 19, 1993, for review.

Draft Final TM #7, Soil Borings - Ash Pits, has been reviewed and returned for minor corrections. The TM was received by DOE on January 25, 1993, and is ready for submittal to the regulatory agencies.

TM #10 is being generated to amend the FSP at IHSS 209. This TM will reduce the number of borings from 21 to 4 if the regulatory agencies concur. The regulatory agencies agree in principle that the number of borings should be reduced. The TM is now being reviewed.

**Planned Work for
February**

- Complete surficial soil sampling at IHSS 115.
- Complete 30 well point installation sites in OU 5.
- Complete FIDLER survey at IHSS 209.
- Begin soil gas sampling program at IHSS 115.
- Complete HPGe survey at IHSS 133.

Problems

None

Open Items

None

2.6 OU 6 - WALNUT CREEK

This activity encompasses assessment and remediation in the Walnut Creek Drainage of 21 IHSSs: the A-series Detention Ponds, Ponds A-1 through A-4 (IHSS 142.1 through 142.4 and 142.12); the B-series Detention Ponds, Ponds B-1 through B-5 (IHSS 142.5 through 142.9); the North, Pond, and South Area Spray Fields (IHSS 167.1, 167.2 and 167.3); the East Area Spray Field (IHSS 216.1), the Trenches A, B and C (IHSS 166.1, 166.2 and 166.3); the Sludge Dispersal Area (IHSS 141); the Triangle Area (IHSS 165); the Old Outfall Area (IHSS 143), and the Soil Dump Area (IHSS 156.2). Eleven ground water monitoring wells have been installed throughout OU 6 to monitor the alluvial aquifer.

Sediment samples will be collected from the Walnut Creek drainage where existing data are insufficient to adequately characterize the sediments. Sediment sampling has been proposed along each stream segment on North and South Walnut Creeks where additional characterization is needed. Based on a review of the data collected at the existing locations along the OU 6 drainage, there is sufficient information about the sediments in many parts of OU 6. Therefore, the sampling locations specified in the RFI/RI Work Plan have been reduced in those areas.

Scope of Work Changes This Period

TM #1 is an addendum to the OU 6 Work Plan, which reduces the number of monitoring wells, air monitoring stations, and radiation surveys. The reduction represents work considered redundant or unnecessary by EG&G with concurrence from DOE, EPA and CDH.

Technical Approach Changes This Period

Stream sediment sampling was expanded to include baseflow and storm-event measurements. Concurrent flow measurements of sediment and water chemical analysis will be made. HPGe radiation surveys will replace the FIDLER instrumentation. The technically superior HPGe will allow a determination of isotope-specific sources of radiation.

IAG Milestone Accomplishments

Submit Draft Phase I RFI/RI Work Plan	19 Apr 91
Submit Final Phase I RFI/RI Work Plan	16 Sep 91

January Work Activity Status

TM #1, Addendum to Final Phase I RFI/RI Work Plan, was approved by the regulatory agencies with the exception of sampling for toxicity tests along the stream segments during storm events. Discussions were held to resolve this remaining issue, and it was agreed that storm-event sampling for toxicity screens would be performed during high flow or storm events along with the other scheduled sampling and flow measurements. TM #1 was changed accordingly and is being prepared as a controlled document to the RI Work Plan.

Two additional borings were drilled in the aerial-photo-interpreted area of IHSS 156.2, which is beyond the outline shown in the OU 6 Work Plan. The radiation survey of IHSS 141 was completed.

All soil borings and monitoring wells in the buffer zone were completed in January. The one remaining drilling rig onsite in the PA to complete IHSSs 143 and 165. IHSS 165 is com-

plete. Drilling is scheduled to be completed in IHSS 143 in early February. IHSS 143 is in an area of numerous underground utilities and above ground power lines.

A meeting was held January 18, 1993, among various RFP safety and construction groups to resolve concerns on how safety issues are settled in the field without causing unnecessary delays. The meeting was prompted by recent drilling activities underneath power lines. The meeting resulted in a heightened awareness of the responsibilities of all parties concerned to improve the efficiency of implementing safety requirements related to ER work.

**Planned Work for
February**

- Start work on the Baseline Risk Assessment.
- Complete all field operations by February 15, 1993, except for seasonal sampling events.

Problems

None

Open Items

None

2.7 OU 7 - PRESENT LANDFILL

The Present Landfill - OU 7 is located north of the plant complex on the western edge of an unnamed tributary of North Walnut Creek and is comprised of two IHSSs. IHSS 114 includes landfill waste and leachate at the Present Landfill, soils beneath the landfill potentially contaminated with leachate, and sediments and water in the East Landfill Pond. IHSS 203 contains potentially contaminated soils at the Inactive Hazardous Waste Storage Area. A section of the Present Landfill located in the southwest corner was used between 1986 and 1987 as a temporary storage area for hazardous waste. The Present Landfill began operation in August of 1968 and was originally constructed to provide for disposal of RFP's nonradioactive and nonhazardous wastes. In September 1973, tritium was detected in leachate from the landfill. During the mid-1980s, extensive investigations were conducted on the waste streams (types) placed into the landfill, and consequently, hazardous wastes/hazardous constituents were identified. Although currently operating as a nonhazardous sanitary landfill, the facility is considered an inactive hazardous waste disposal unit undergoing RCRA closure.

Scope of Work Changes None
This Period

Technical Approach
Changes This Period

The following technical changes verbally agreed to by regulatory agency project managers have been officially transmitted to the regulatory agencies by DOE, RFO.

- soil gas detection limit
- ground water sampling frequency
- borehole packer tests replaced with monitor well slug tests
- deletion of two upgradient boreholes since sufficient upgradient data exists
- deletion of weathered bedrock monitor wells when no weathered bedrock strata is encountered

IAG Milestone
Accomplishments

Submit Draft Phase I RFI/RI Work Plan	08 Jun 90
Submit Final Phase I RFI/RI Work Plan	28 Aug 91

January Work Activity
Status

Drilling continues on upgradient monitoring wells. The deep well south of the landfill was drilled to 150 feet before the decision was made to stop drilling. DOE decided that if there were no suitable existing zones for development it was not necessary to drill deeper. DOE obtained regulatory agency concurrence for this action. Upon review of the drill core, it was felt that a silty claystone zone around 60 feet below land surface would produce limited amounts of water seasonally and would be suitable for sampling. The decision was made to complete the well at that depth rather than abandon the entire hole. The remaining well on the upgradient north side of the IHSS 114 was completed during the week ending January 15, 1993.

The cone penetrometer (CPT) rig continues to work inside the landfill on pre-BAT™ sampling activities at the final line at the east end. These activities include down-hole gas sampling

with a photo ionization detector. The purpose of this is to select the intervals for the BAT system.

Comments were received regarding the IHSS 114 surficial soils TM and the TM #2, Modeling, for the HHRA. Many of these comments requested EE issues be incorporated into the HHRA TMs. TM #1, Exposure Assessment, and the TM for surficial soil sampling within IHSS 114 were submitted to the regulatory agencies for review at the end of January 1993. The underlying concern that drives these comments is that no documentation is being generated for EE activities prior to submittal of the draft EE Report, which is the only IAG required deliverable for the EE portion of the Baseline Risk Assessment (BRA). While the entire framework and overall strategy for performing the HHRA is detailed via TM and reviewed and approved by DOE and the agencies, no such medium exists for the EE section of the BRA. Section VIII.D of Attachment 2 of the IAG requires only that the report be included as a chapter of the BRA.

Due to the TM process, the HHRA framework and strategy is approved prior to actually initiating the HHRA. EG&G's assessment is that although we are in compliance with the IAG it would be prudent to develop some type of review process prior to submittal of the entire draft EE. This would alleviate the potential for major problems to occur as a result of the regulatory agencies not agreeing with our EE approach and not identifying major issues until final submittal of the draft EE. An early submittal for review to DOE of completed sections of the EE report as well as an up front submittal of a framework of approach for conducting EEs would solve this issue. As a result of a meeting held January 15, 1993, between the DOE project manager, the DOE technical lead for BRAs, and EG&G OU Management, this approach was deemed satisfactory and would resolve these comments.

At a meeting held on January 20, 1993, among EG&G personnel, it was determined that an EE outline of deliverables and their technical contents will be developed for submittal to DOE for review. These deliverables will provide the basis for an in-process review of the EE task prior to submittal of the EE report. A checklist will be developed to be reviewed by DOE that identifies criteria to be considered to ensure coordination of EE/HHRA efforts. This issue was also a concern identified in TM review comments from DOE.

Upon review of real time monitoring data, the EG&G Industrial Hygiene group determined it was acceptable for the Cone Penetrometer Testing (CPT) operations crew to downgrade personnel protective equipment (PPE) to a modified level D. Real-time monitoring will continue throughout the duration of the operation. This will enhance the effectiveness of this operation.

An audit of the OU 7 field trailer files on January 7, 1993, was performed by the Environmental/Waste Assessments and Audits group (EWAA). This group initially requested access to field operations to audit the project for compliance with SOPs specific to sampling. The audit will focus on the project files.

Planned Work for
February

CPT work will continue. Soil boring within IHSS 114 will begin. Anticipated comments from the regulatory agencies for HHRA TMs #1 and #2 will be addressed.

Problems

None

Open Items

None

2.8 OU 8 - 700 AREA

The 24 IHSSs that constitute OU 8 encompass separate sites inside and around the RFP production area. Contamination sources within the various IHSSs include above ground and underground tanks, equipment washing areas, and releases inside buildings, which potentially affected areas outside the buildings. Contaminants from these sources may have been introduced into the environment through spills on the ground surface, underground leakage and infiltration, and in some cases through precipitation runoff. The chemical composition of the contaminants also varies widely between the IHSSs, ranging from low-level radioactive mixed wastes to nonradioactive organic and inorganic compounds.

Scope of Work Changes None
This Period

Technical Approach The OU Managers for the IA OUs (8, 9, 10, 12, 13, and 14) are
Changes This Period working to consolidate the nonintrusive field work portions of
 their Phase I Work Plans. This integration has the potential for
 cost savings and schedule consolidation based on combining
 resources and contracting, permitting, mobilization/demobilization, and training.

IAG Milestone	Submit Draft Phase I RFI/RI Work Plan	01 May 92
Accomplishments	Submit Final Phase I RFI/RI Work Plan	01 Dec 92*

*EPA/CDH approved an extension on this milestone from September 28, 1992, to December 1, 1992.

January Work Activity The regulatory agencies submitted comments on the Final
Status Phase I RFI/RI Work Plan dated December 1, 1992, to DOE on
 January 15, 1993. The comments are not extensive. However,
 the regulatory agencies are concerned that DOE is lacking in a
 commitment to implement the OU 8 Work Plan, and, consequently, the agencies perceive this as a principal deficiency of the Final Work Plan. The regulatory agencies have requested that responses and revisions of the Work Plan be completed by February 26, 1992. Once all comments are dispositioned they will be consolidated and incorporated into the final document.

Planned Work for Revise the December 1, 1992, Final Work Plan and comment
February responsiveness summary in accordance with regulatory
 agency comments received on January 15, 1993.

Problems None

Open Items Complete the IA OU contracting process and finalize schedules for OUs 8, 9, 10, 12, 13, and 14.

2.9 OU 9 - ORIGINAL PROCESS WASTE LINES

This activity involves characterizing a series of tanks and associated process waste lines. The Original Process Waste Lines (OPWL) consisted of a system of 57 designated pipe sections extending between 73 tanks and 24 buildings connected by 35,000 feet of buried pipeline that transferred process wastes from point of origin to onsite treatment plants. The system was placed into operation in 1952, and additions were made to the system through 1975. The original system was replaced over the 1975-1983 period by the new process waste system. Some tanks and lines from the original system have been incorporated into either the new process waste system or the fire water deluge collection system.

The original system is known to have transported or stored various aqueous process wastes containing low-level radioactive materials, nitrates, caustics, and acids. Small quantities of other liquids were also introduced in the system, including pickling liquor from foundry operations, medical decontamination fluids, miscellaneous laboratory liquids from Building 123, and laundry effluent from Buildings 730 and 778. The RFI/RI plan includes inspection and sampling of the OPWL tanks and pipelines that are accessible and soil sampling to determine the extent of contamination in the vadose zone. The soil sampling will be performed by installing test pits and boring where known or suspected releases occurred, near pipe joints and valves, at approximately 200-foot intervals along the pipelines, and by installing borings around the tanks that are outdoors. Soil characterization studies will determine the need for soil removal and/or treatment. The results of the RFI/RI will determine the need for interim and/or final remediation action.

Scope of Work Changes None
This Period

Technical Approach
Changes This Period

The OU Managers for the IA OUs (8, 9, 10, 12, 13, and 14) are working to consolidate the nonintrusive field work portions of their Phase I Work Plans. This integration has the potential for cost savings and schedule consolidation based on combining resources and contracting, permitting, mobilization/demobilization, and training.

Non-intrusive Phase I, Stage I activities will begin in FY93 and include data compilation, assembling and reviewing engineering drawings, site inspections, personnel interviews, and preparation of TM 1- Field Sampling Plan (FSP). Implementation of the FSP will begin in FY94.

IAG Milestone
Accomplishments

Submit Draft Phase I RFI/RI Work Plan
Submit Final Phase I RFI/RI Work Plan

08 Jun 90
26 Nov 91

January Work Activity
Status

Work Package tasks specific to OU 9 include a review of engineering records and interviews with appropriate personnel to clarify historical OPWL operating practices and confirm locations of pipes, tanks, and other structures. Information gathered in this additional data compilation will be used in the fourth quarter FY93 to prepare the Draft TM #1, Field Sampling Plan.

All OU 9 IHSSs were thoroughly reviewed to identify any obvious accessible remediation targets. None of the pipelines are even remotely accessible. One tank installation, T-3, which is a pair of 3,000-gallon tanks south of Building 441, may be a candidate for remediation.

Geographic Information Systems (GIS) requirements for FY93 are in the planning stage. Plans for nonintrusive field work for FY93 were reviewed. Summary data that is available will serve as a starting point to set up the OU 9 GIS database. Anticipated demands on the GIS for FY93 were noted.

OU 9 will serve as the focal point for the application of GIS to the Integrated OU. Interplant negotiations with computer aided design/computer aided engineering (CAD/CAE) personnel are underway to get the digitized Plant Utility Maps for import into GIS. This utility map data would be used in planning the field activities within the IA IHSSs, and would be updated as newer or more precise data is gathered.

Disposition of some water in the valve vault adjacent to Building 559 was under discussion by EG&G personnel this month. Routinely, such "Incidental Water" is managed by the Surface Water Division in accordance with procedure CWAD.01, "Requirement for Control and Disposition of Incidental Waters." Building 559 Management believed that since the snow melt derived water was in a structure of the OPWL, it must be analyzed for the full suite of analytes listed in the Phase I RFI/RI Work Plan. Supporting documentation was provided (analyte lists, maps of OU 9, etc.) to 559 Operations personnel who are investigating this issue with DOE.

Planned Work for
February

Procurement activities will continue until mid-April 1993.

Problems

None

Open Items

Complete the IA OU contracting process and finalize schedules for OUs 8, 9, 10, 12, 13, and 14.

2.10 OU 10 - OTHER OUTSIDE CLOSURES

OU 10 is made up of 15 IHSSs scattered throughout the plant which consist of various hazardous waste units. Six of the IHSSs are located in the PA, two are located in the buffer zone near the Present Landfill, and the remaining IHSSs are located near various buildings throughout the plant. The types of wastes identified at these sites range from pondcrete/saltcrete storage and drum storage to a utilization yard with waste spills. A Final Phase I RFI/RI Work Plan is currently in preparation. The primary components of the RFI/RI Work Plan for OU 10 will be an FSP, Baseline Risk Assessment Plan (BRAP), and an EE Work Plan. IRA is scheduled to begin in early 1998.

Scope of Work Changes This Period None

Technical Approach Changes This Period

The OU Managers for the IA OUs (8, 9, 10, 12, 13, and 14) are working to consolidate the nonintrusive field work portions of their Phase I Work Plans. This integration has the potential for cost savings and schedule consolidation based on combining resources and contracting, permitting, mobilization/demobilization, and training.

Only nonintrusive work as part of the integrated OU approach will be completed in FY93.

IAG Milestone Accomplishments

Submit Draft Phase I RFI/RI Work Plan	27 Nov 91
Submit Final Phase I RFI/RI Work Plan	01 May 92

January Work Activity Status

SOWs for the IA Integrated Project were completed and submitted to Procurement on schedule on January 27, 1993.

The removal of waste storage items from IHSSs 170, 174 (PU&D Yard), 176 (SW Contractor Yard) and 210 (Storage Area) continues. Issues surrounding the removal of waste materials from the aforementioned IHSSs were discussed, and it was agreed that a detailed cost estimate, schedule, and a location where wastes from these areas will be placed would be identified. The due date for the cost estimate and schedule information to be completed is February 8, 1993.

Planned Work for February

Develop SOWs for work to be completed as part of the integrated OU approach.

Problems

None

Open Items

- Regulatory agencies final approval status of the OU 10 RFI/RI Work Plan is pending.
- Complete the IA OU contracting process and finalize schedules for OUs 8, 9, 10, 12, 13, and 14.

2.11 OU 11 - WEST SPRAY FIELD

The West Spray Field is located within the RFP buffer zone immediately west of the plant security area. The West Spray Field was in operation from April 1982 to October 1985 when excess liquids from solar evaporation ponds 207-B North and Center (contaminated ground water in the vicinity of the ponds and treated sanitary sewage effluent) were pumped periodically to the West Spray Field for spray application. The spray field boundary covers an area of approximately 105.1 acres, 38.3 of which received direct application of hazardous waste. The RFI/RI process will entail field studies to investigate the presence or absence of hazardous constituents in soil and ground water.

Scope Changes This Period	None	
Technical Approach Changes This Period	None	
IAG Milestone Accomplishments	Submit Draft Phase I RFI/RI Work Plan Submit Final Phase I RFI/RI Work Plan	08 Jun 90 02 Jan 92
January Work Activity Status	The final version of the proposal to rescope OU 11 field activities is at DOE for review. This outline will require written concurrence from DOE prior to implementation. The proposed scope change will not impact FY93 funding, although it will require funding shifts within the work package. CDH has supported the outlined proposal outline and has agreed to participate with rescoping. DOE has approved the rescoping proposal outline. DOE written guidance initiating additional activities supporting this proposal is pending.	
Planned Work for February	<ul style="list-style-type: none"> All work is pending the approval of the proposed changes in the Work Plan. 	
Problems	None	
Open Items	The proposal to condense the remedial investigation of OU 11 into one phase (referenced above) is pending. Costs of the project would be significantly decreased as a result of combining the phases and thus reducing multiple contract procurement cycles, field mobilizations, and field investigations.	

2.12 OU 12 - 400/800 AREA

The 400/800 Area involves assessment and remediation of the 11 IHSSs at the 400/800 Area, including: Multiple Solvent Spills at the West and South Loading Dock Areas (IHSSs 116.1 and 116.2); Fiberglassing Areas North and West of Building 664 (IHSSs 120.1 and 120.2); Cooling Tower Ponds - Northeast, South, and West of Building 460 (IHSSs 136.1, 136.2, and 136.3); Process Waste Leak - Owen Area (147.2); Radioactive Site - South Area (IHSS 157.2); Acid Leaks (2) (IHSS 187); and Multiple Acid Spills (IHSS 189).

Assessment will consist of preparing a Phase I RFI/RI Work plan, which will include both an EE and an HHRA. After implementation of this Work plan, field work and sample analysis will be conducted, data will be analyzed, and the Phase I RI Report will be prepared. An FS to determine the best methods to remediate the area will be conducted as part of the assessment.

Remediation will consist of development and execution of a Remedial Action Plan based on results obtained during the assessment phase of the project. This process includes review and approval by the regulatory agencies, followed by a ROD, release to the public, and implementation of the plan.

Scope of Work Changes This Period Only nonintrusive work as part of the integrated OU approach will be completed in FY93.

Technical Approach Changes This Period The OU Managers for the IA OUs (8, 9, 10, 12, 13, and 14) are working to consolidate the nonintrusive field work portions of their Phase I Work Plans. This integration has the potential for cost savings and schedule consolidation based on combining resources and contracting, permitting, mobilization/demobilization, and training.

IAG Milestone Accomplishments	Submit Draft Phase I RFI/RI Work Plan	08 May 92
	Submit Final Phase I RFI/RI Work plan	05 Oct 92

January Work Activity Status Work has begun on the SOW for the Integrated IA field activities. The SOW was delivered to Procurement on January 27, 1993, to begin the MTS procurement process. We anticipate that a subcontract will be awarded for the IA field work in April 1993.

The Final Phase I OU 12 Work Plan, including all corrections and revisions, was delivered to the regulatory agencies on December 18, 1992. It is anticipated that the agencies will grant final approval for the OU 12 Work Plan sometime during February 1993.

Planned Work for February • Develop SOW for work to be completed as part of the integrated OU approach.

Problems Contract work for field work is not expected to start until April 1993.

Open Items Complete the IA OU contracting process and finalize schedules for OUs 8, 9, 10, 12, 13, and 14.

2.13 OU 13 - 100 AREA

Cleanup of the 100 Area involves the assessment and remediation of 14 IHSSs: Chemical Storage - North, Middle, and South Sites (IHSSs 117.1, 117.2 and 117.3); Oil Burn Pit #1 (IHSS 128); Lithium Metal Destruction Site (IHSS 134); Waste Spills (IHSS 148); Fuel Oil Tank (IHSS 152); Radioactive Site - North Area (IHSS 157.1); Radioactive Site - Building 551 (IHSS 158); Waste Peroxide Drum Burial (IHSS 169); Solvent Burning Ground (IHSS 171); Valve Vault 12 (IHSS 186); Caustic Leak (IHSS 190); and the Hydrogen Peroxide Spill (IHSS 191), and the Scrap Metal Site (IHSS 197).

Assessment will consist of preparing a Phase I RFI/RI Work Plan, which will include both an EE and an HHRA. After implementation of this Work Plan, field work and sample analysis will be conducted, data will be analyzed, and the Phase I RI Report will be prepared. An FS to determine the best methods to remediate the area will be conducted as part of the assessment.

Remediation will consist of development and execution of a Remedial Action Plan based on results obtained during the assessment phase of the project. This process includes review and approval by the regulatory agencies, followed by a Record of Decision (ROD), release to the public, and implementation of the plan.

Scope of Work Changes None
This Period

Technical Approach
Changes This Period

The OU Managers for the IA OUs (8, 9, 10, 12, 13, and 14) are working to consolidate the nonintrusive field work portions of their Phase I Work Plans. This integration has the potential for cost savings and schedule consolidation based on combining resources and contracting, permitting, mobilization/demobilization, and training.

IAG Milestone
Accomplishments

Submit Draft Phase I RFI/RI Work Plan	15 May 92
Submit Final Phase I RFI/ RI Work Plan	12 Oct 92

January Work Activity
Status

The OU 13 Work Plan was submitted to the regulatory agencies per the IAG schedule, but the Work Plan has not been approved pending the resolution of three issues:

Settlement of the Applicable or Relevant and Appropriate Requirements (ARARs)/Chemical Benchmark Issues. - A schedule and SOW were developed to revise the Benchmark tables. The goal is to have a corrected table delivered to the regulatory agencies as soon as possible. A meeting held November 25, 1992, discussed the progress of this goal. The revised tables were completed and delivered on December 22, 1992, to the regulatory agencies. A meeting will be held during the week ending February 5, 1993, with the agencies to review the tables.

Receipt and approval of HPGe SOPs by the regulatory agencies - The HPGe SOP issue is still unresolved. A revised SOP was forwarded to the regulatory agencies on January 26, 1993, and CDH was concerned because all of their comments were

not incorporated into the revised SOP. Meetings are scheduled during the week ending February 12, 1993, with EG&G personnel to rectify the problem. CDH is outlining their concerns in a letter.

Approval of a more comprehensive surficial soils component to the Field Sampling Plan (FSP) - Because soil sampling is not required in the IAG, this request for additional soil sampling adds to the scope and exceeds the budget. The Work Plan contains 54 surface soil samples, and this amount is enough to do a BRA. The cost of these samples is estimated to be \$250,000. CDH has requested that a surficial soil sample be taken at every fourth HPGe or soil gas sampling location. This would expand the proposed sampling effort by about 130-150 samples. Analysis of each additional sample will cost approximately \$3,800 or a total of \$570,000. A response to comments from CDH includes a revised sampling plan is currently being prepared. The Los Alamos Technology Office (LATO) has offered to assist in reviewing the revised plan. An internal milestone of February 22, 1993, has been set to submit the revised Work Plan.

Several of the IHSSs within OU 13 (IHSSs 117.1, 117.2, 158, 186, and 197) are used as storage areas for a variety of materials, such as scrap metal, building supplies, and other various items. These items will need to be relocated out of the IHSS or moved around in the IHSS in order for RIs to begin.

A letter will be prepared to the responsible managers seeking cooperation in removal or relocation of materials from the IHSSs during remedial activities.

Planned Work for February

- Work will continue to remove and relocate materials stored in IHSSs 117.1, 117.2, 158, 186, and 197.

Problems

CDH did not approve the HPGe SOPs as submitted on January 28, 1993. Work on the SOPs continues.

Open Items

See 1, 2, and 3 in "January Work Activity Status."

2.14 OU 14 - RADIOACTIVE SITES

Work at the "Radioactive Sites" involves the assessment and remediation of eight IHSSs: Radioactive Site - 700 Area Site #1 and Site #2 (IHSS 131); Radioactive Soil Burial - Building 334 Parking Lot and Soil Dump Area (IHSSs 156.1); Building 444 Parking Lot (IHSS 160) and Building 664 (IHSS 161); and Radioactive Site - 700 Area Site #2 (IHSS 162); and Radioactive Sites - 800 Area which includes the Concrete Slab, Building 886 Spills, and the Building 889 Storage Pad (IHSSs 164.1, 164.2, and 164.3). In 1991, one of two Soil Dump Area IHSSs (156.2) was deleted from OU 14 and added to OU 6.

Assessment will consist of preparing a Phase I RFI/RI Work Plan, which will include both an EE and an HHRA. After implementation of this work plan, field work and sample analysis will be conducted, data will be analyzed, and the Phase I RI Report will be prepared. An FS to determine the best methods to remediate the area will be conducted as a subsequent phase to the assessment phase.

Remediation will consist of development and execution of a Remedial Action Plan based on results obtained during the assessment phase and feasibility study of the project. This process includes review and approval by EPA and CDH, followed by a ROD, release to the public, and implementation of the plan.

Scope of Work Changes None
This Period

Technical Approach The OU Managers for the IA OUs (8, 9, 10, 12, 13, and 14) are
Changes This Period working to consolidate the nonintrusive field work portions of
their Phase I Work Plans. This integration has the potential for
cost savings and schedule consolidation based on combining
resources and contracting, permitting, mobilization/demobilization, and training.

IAG Milestone Accomplishments	Submit Draft Phase I RFI/RI Work Plan	26 Jun 92
	Submit Final Phase I RFI/RI Work Plan	19 Oct 92

January Work Activity A draft SOW is being prepared for inclusion into a SOW for
Status the Integration of OUs 8, 9, 10, 12, 13, and 14.

The period of performance on the subcontract expired at the end of 1992. An extension request has been submitted to Procurement to extend the time of the subcontract until February 28, 1993. The subcontractor requested additional time to finalize the last deliverable, which is a cost estimate for implementing the RFI/RI field work.

Planned Work for • Begin integration of FSP among the various IA OUs to elimi-
February nate overlap and duplication of sampling efforts.

• An internal review of the cost estimate draft deliverable will be performed.

DOE, Rocky Flats Plant

Problems

The Work Plan was scheduled for approval by the regulatory agencies on November 17, 1992. DOE was notified in writing by the EPA that approval is being withheld until a scope and schedule for performing the IA/IRA Plan is agreed upon by the the regulatory agencies and DOE.

Open Items

Complete the IA OU contracting process, finalize schedules, and refine work packages for OUs 8, 9, 10, 12, 13, and 14.

2.15 OU 15 - INSIDE BUILDING CLOSURES

OU 15 is composed of six IHSSs: Building 881 Drum Storage Area; Building 865 Drum Storage Area; Building 883 Drum Storage Area; Unit 45, Original Uranium Chip Roaster; Unit 26, Building 881 Drum Storage; and Unit 32, Building 881 - Cyanide Bench Scale Treatment. The six IHSSs are currently listed as RCRA interim status units. Closure Plans for the facilities were submitted to CDH in 1988 and again in 1989. The major activity proposed is characterization and decontamination, if applicable, of the concrete floors at the indoor facilities. Drums and dumpsters containing solids and liquids were stored at these facilities. Types of waste included oils, coolants and solvents containing chlorinated hydrocarbons (RCRA F001 and F002 wastes) and waste paints and waste metals contaminated with solvents. Hazardous constituents include chlorinated solvents, beryllium, and uranium.

Scope of Work Changes This Period None

Technical Approach Changes This Period None

IAG Milestone	Submit Draft Phase I RFI/RI Work Plan	01 Jun 92
Accomplishments	Submit Final Phase I RFI/RI Work Plan	26 Oct 92

January Work Activity Status . The Technical Evaluation of proposals for implementation of the Phase I RFI/RI Work Plan was completed January 2, 1993. Award of a subcontract for implementation of the Work Plan is expected during March 1993. Coordination of transition work, building operations, and possible use of Radiological Protection Technicians (RPTs) with implementation of the Work Plan was discussed at a meeting on January 11, 1993. The meeting proved successful because coordination of transition and IAG work efforts were initiated and will continue.

Coordination of transition work, building operations, and possible use of radiation protection technicians (RPTs) with implementation of the Work Plan is ongoing while waiting for comments on the Work Plan submitted to the regulatory agencies on January 14, 1993.

Planned Work for February Negotiations for award of a subcontract for implementation of the Phase I RFI/RI Work Plan will be conducted.

Problems None

Open Items The issue regarding EPA's comments on IHSS 212 and the OU 15 Final Phase I RFI/RI Work Plan remains unresolved. DOE and EG&G do not concur with EPA's comment regarding IHSS 212 as stated within DOE Responses to Comments regarding the Final Work Plan. DOE responded to the EPA's comment by indicating that "IHSS 212 will not be addressed as part of OU 15 per CDH comments on the Draft Phase I RFI/RI

Work Plan for OU 15" and that "Part VIII of the RFP RCRA Part B Mixed Permit Application and/or its modification includes Closure Plans, which will specifically address radioactive contamination as part of a mixed waste that is regulated under RCRA."

2.16 OU 16 - LOW PRIORITY SITES

This assessment activity consists of preparing a No Further Action Justification Document (NFAJ) for 7 IHSSs: Solvent Spill, Antifreeze Discharge, Steam Condensate Leaks, Nickel Carbonyl Disposal, Water Treatment Plant Backwash Pond, and Scrap Metal Sites. In addition, the draft document must be reviewed, comments resolved, and the draft finalized.

Scope of Work Changes None
This Period

Technical Approach None
Changes This Period

IAG Milestone	Submit Draft No Further Action	
Accomplishments	Justification Document	04 Mar 92
	Submit Final No Further Action	
	Justification Document	30 July 92

January Work Activity The NFAJ Document for OU 16 is still pending approval
Status despite the expected approval date of November 20, 1992. The
period of performance for the contract expired December 31,
1992. An extension of the contract period is not anticipated.

Correspondence was received by DOE from EPA on the Final NFAJ Document. EPA acknowledged that the Final document adequately addressed comments on the Draft document. However, EPA takes the position that "the close-out of OU 16 can only be achieved by following the administrative process through to the Proposed Plan (PP) and the ROD." (ltr: G. Baughman, Colorado Department of Health from M. Hestmark, Environmental Protection Agency, December 2, 1992. RE: Approval of the OU 16 Final No Further Action Justification Document.) DOE is expecting a response from CDH on this subject.

A presentation on OU 16 was made by EG&G to the Technical Review Group (TRG) on January 19, 1993.

Planned Work for All tasks associated with the contract are completed. The con-
February tract close-out process is being performed.

Problems No response has been received from the regulatory agencies to
resolve the issue of whether OU 16 will be taken beyond the
NFAJ document.

Open Items None

2.17 SITEWIDE ACTIVITIES

Sitewide activities include several tasks that encompass a wide variety of plans, procedures, reports, studies, and other activities required by the IAG and that apply to RFP environmental restoration activities in general. The activities include, but are not limited to, the Health and Safety Plan, a Sampling and Analysis Plan, a Plan for Prevention of Contaminant Dispersion, the Community Relations Plan, the Discharge Limits for Radionuclides Work Plan, Treatability Study deliverables, the Background Study Plan, Administrative Record, State Response (support for CDH oversight), Historical Release Report, Operations Management, Decontamination Facilities, Contractor yard support, ER Waste handling facilities, geologic characterization, hydrogeologic characterization, and ground water monitoring.

Scope of Work Changes None
This Period

Technical Approach None
Changes This Period

IAG Milestone	Submit Draft Background Study Report (Water)	15 Dec 89
Accomplishments	Submit Draft Background Study Report (Soils)	15 Dec 89
	Submit Draft Community Survey Plan	23 Jan 90
	Submit Final Community Survey Plan	22 Mar 90
	Submit Draft HSP	15 Aug 90
	Submit Draft Quality Assurance Project Plan (QAPP)	29 Aug 90
	Submit Draft SOPs	29 Aug 90
	Submit Draft Plan for Prevention of Contaminant Dispersion (PPCD)	19 Sep 90
	Submit Draft Treatability Study Plan	21 Sep 90
	Submit Draft Community Relations Plan (CRP)	01 Nov 90
	Submit Final HSP	12 Nov 90
	Submit Revised Background Study Report	21 Dec 90
	Submit Final CRP	22 Jan 91
	Submit Final QAPP	01 Mar 91
	Submit Final SOPs	01 Mar 91
	Submit Draft Discharge Limits Radionuclides Plan (DLRP)	05 Apr 91
	Submit CRP RS	21 Jun 91
	Submit Final Treatability Study Plan	03 Jun 91
	Submit Final PPCD	22 Jul 91
	Submit Final DLRP	16 Sep 91
	Submit Final PPCD and RS	25 Nov 91
	Submit Draft Historical Release Report (HRR)	08 Jan 92
	Submit RS for DLRP	31 Jan 92
	Submit Final HRR	03 Jun 92

January Work Activity
Status

Sitewide Treatability Studies Soils Cleanup Issues Meeting at Los Alamos - A meeting was held at Los Alamos National Labs (LANL) on January 25-26, 1993, to discuss soils cleanup issues at Fernald and Rocky Flats and how LANL might be able to help. Included were attendees from DOE/HQ, DOE/RFO, Fernald, EG&G, and LANL. The meeting was divided into several presentations concerning soils cleanup

problems at various sites followed by presentations concerning various technologies at LANL. Tours included the Magnetic Separation Lab, Long Range Alpha Detection, and the Soil Containment/Barriers Test Plots.

Treatability FY93 Projects - The following projects are on hold because of FY93 funding limitations: Oxidation-Reduction, Wetlands Study, and Colloid Polishing Filter Method (formerly Techtran). Funding from projects that were on hold will be used to purchase and install an Inductively Coupled Plasma Mass Spectrometer (ICP-MS) in the Treatability Laboratory in Building 881.

Annual Report - The Sitewide Treatability Studies Annual Report is an IAG Table VI Milestone. The report includes a summary of the status of each of the sitewide projects, a literature review of new and emerging technologies, and a summary of other relevant environmental projects at RFP.

The draft report was completed December 23, 1992, and was reviewed by DOE, RFO. The review was completed January 12, 1993, and the report will be updated and reviewed again by DOE, RFO on February 22, 1993. The report is on schedule and due to the regulatory agencies on March 8, 1993.

Inductively Coupled Plasma Mass Spectrometer - Mass Spectrometer - The revised work package for the Sitewide Treatability Studies Program now contains funding to purchase and install an ICP-MS in the Treatability Laboratory in Building 881. The addition of this equipment will significantly increase the analytical capability of the laboratory and will result in lower analytical expenses and faster turnaround time for treatability studies conducted in the future.

The procurement package for this equipment has been submitted to Procurement for placement of the order. The ICP-MS is made by a Canadian company. Since the supplier is a foreign company, an additional review and approval step is required by DOE. It is anticipated that the review will be completed in early February.

Lockheed Plasma Melter - Lockheed Environmental has asked EG&G Rocky Flats to participate in a plasma melter demonstration project along with EG&G Idaho. The purpose of the project is to investigate the performance of plasma melting technology for the destruction of hazardous organic compounds in soils and to determine the characteristics of the vitreous waste form produced by the process. RFP will contribute some plutonium (Pu) contaminated soil for bench-scale testing.

This test work was originally scheduled to begin in April 1993, but as of January 14, 1993, it appears that the work will not

occur until late summer 1993 because of contractual difficulties with EG&G Idaho.

Soil Washing Demonstration - Nuclear Remediation Technologies (NRT), a subsidiary of General Atomics located in San Diego, California, has proposed to test its proprietary soil washing process on a sample of Rocky Flats Pu-contaminated soil. The test work will be carried out with no charge to RFP other than sample collection and shipping costs and labor to witness the test.

NRT received the test soil sample to be used in the test on November 18, 1992. Initial work will consist of sample preparation (blending and splitting), characterization of the particle size distribution of the sample, and a soil washing test. The test work began on December 14, 1992. The results will be used to determine "optimal" testing conditions. The optimized testing is tentatively scheduled for January 1993. RFP personnel will witness the test when it is performed.

Status of Treatability Laboratory in Building 881 - A treatability study laboratory is being developed at RFP. The lab will be used to conduct some of the treatability studies for the Sitewide Program. The laboratory is ready for experimental work. The first work scheduled to be carried out is the TRU/Clean (potassium ferrate precipitation) treatability study. This work is schedule to begin in January 1993 pending placement of the subcontract.

The second round of repairs to the process drain line for the building is complete. The drain line was placed back in operation on January 25, 1993.

Pu in Soils - Physical Separation (TRU/Clean) - The TRU/Clean process (physical separation) was identified in the Final Sitewide Treatability Plan for further test work and evaluation to determine how effectively it might remove Pu contamination from RFP soils. This test work was planned to be part of the Plutonium in Soils Integrated Demonstration. However, the Integrated Demonstration has been put on hold. RFP has contracted with Lockheed Environmental Systems and Technologies Company to conduct testing of the TRU/Clean process with RFP soils.

DOE reviewed the revised work plan for this project. The work plan is now being prepared for submittal to EPA and CDH.

Results from the radiological screening samples indicate that the bulk samples (55-gallon drums) will exceed the 2,000 picocurie (pCi) limit. This indicates that the bulk soil sample should comply with 49 CFR Section A - Radioactive material for shipment and

packaging. The RFP Traffic Department will ship the bulk samples if they meet all packaging requirements.

Bulk soil samples will be shipped no earlier than February 15, 1993 (four 55-gallon drums).

Colloid Polishing Filter Method (Techtran) - This process used a proprietary chemical complexing agent to remove heavy metals and/or radionuclides contaminants from waste water or ground water. The contaminants are removed from the water by precipitation and filtration. Ultimately, the contaminants are contained in a dried filter cake and the treated water is returned to the environment. Preliminary tests performed at RFP in 1991 with this technology were favorable.

EPA will support a site demonstration of this technology at RFP. EPA is preparing a Memorandum of Understanding (MOU) to transfer funding for this project to DOE. The exact amount of funding or timing is not known at this time.

Uranium Analyzer - The uranium analyzer was installed and is operational in the treatability laboratory. Calibration studies have shown that the analyzer is capable of determining uranium concentrations on the order of 10 parts per billion (ppb). The uranium analyzer will be used to determine uranium concentrations in the influent and effluent streams from various treatability study projects. The results will be used to measure the efficiency of the treatability study process for removing uranium.

Sitewide Treatability Studies on Ion Exchange and Adsorption - Ion Exchange and Adsorption are two of the technologies identified in the Final Sitewide Treatability Study Plan for further test work and evaluation to determine how effectively they might remove various contaminants from surface and ground water at RFP.

Comments from DOE and other reviewers are being consolidated and submitted to the subcontractor for incorporation into the Final Sitewide Treatability Plan. The draft final work plan is scheduled to be completed during the first week in February 1993.

Bioremediation - Both EPA and CDH have requested that DOE/EG&G consider bioremediation as a potential technology for use at RFP. Since the topic is so broad, we are attempting to narrow the scope to items that are applicable to RFP. The literature review for bioremediation is continuing. Extensive computer searches are underway for key articles. An outline of significant topics is being prepared in order to begin writing a summary report based on the literature study.

TRU/Clear - TRU/Clear is the brand name for a proprietary precipitating agent based on the use of ferrite ions. The TRU/Clear process belongs to a company named ADC, located in Colorado Springs. Preliminary test work carried out at RFP has shown favorable results.

The contract with ADC to conduct the actual test work is approved and in place. The contract with Accu-labs to do the analytical chemistry work should be approved by the end of January 1993.

A work plan for the test work is being written and should be completed by mid-February. Once the work plan is completed and approved, the test work will begin in the treatability study laboratory in Building 881.

Peer Review of Technology Selection Process - The Rocky Mountain University Consortium has been authorized to begin a review of the Final Treatability Studies Plan with particular emphasis on the technology review and selection process. The review is based on a SOW written by Colorado State University (CSU).

Contractor personnel met with a CSU representative on January 27, 1993, to discuss the goals of the review process. This meeting produced a tentative schedule for the review work. The highlights of the schedule are:

- Form a review committee - February 12, 1993
- Review committee's evaluation and recommendations for the Technology Selection Process - March 19, 1993
- Draft of Technology screening results - April 19, 1993
- DOE/EG&G comments on draft - May 3, 1993
- Final document from Consortium - June 15, 1993

Oxidation/Reduction - Oxidation/Reduction is one of the technologies identified in the Final Site Wide Treatability Plan for further test work and evaluation to determine how effectively it might remove various contaminants from surface and ground water at RFP. This plan was placed on hold under direction from RFO.

Magnetic Separation - High Gradient Magnetic Separation (HGMS) is one of the technologies identified in the Final Sitewide Treatability Plan for further test work and evaluation to determine if it might effectively remove Pu from contaminated soils. EG&G identified LANL as the most appropriate place to carry out this test work. Since the project is a sole source procurement award, it is under RFO review. Continued revision of the work package for Treatability Studies eliminated funding for this project in FY93.

DOE, Rocky Flats Plant

Planned Work for February

- Review the completed Annual Treatability Study Report before submittal to EPA and CDH in March.
- Continue researching available remediation technologies.
- Continue Community Relations activities.

Problems

None

Open Items

None

SECTION 3. ROUTINE ENVIRONMENTAL MONITORING

The following generalized sampling schedule for routine environmental monitoring is provided as requested in Section 210 of the IAG. Detailed quarterly monitoring schedules are prepared in advance and are available to EPA and CDH upon request from the EM Department and EG&G Rocky Flats, Inc. The schedules are lengthy; therefore, they are not reproduced here. An EPA- or State-authorized representative may make arrangements to observe field work and to obtain split or duplicate samples.

3.1 SURFACE WATER AND SEDIMENTS

- Each of the Surface Water Stations (approximately 20 stations) is sampled quarterly.
- Each of the Sediment Stations (approximately 10 stations) is sampled quarterly.
- Each surface water and sediment sample is analyzed for the following parameters:

CLP TCL VOAs
Field Parameters
Dissolved Oxygen
Radionuclides
TDS/TSS
Nutrients

Metals CLP TAL and Non-TAL
Specific Conductivity
Major Anions
Temperature
pH

- Additionally, sediment samples are analyzed for: CLP-Semi VOAs, CLP-Pesticides/PCBs
Herbicides-69

3.2 SOILS

- Each of the Soil Stations (located at 1- and 2-mile radii from the plant center) is sampled annually.
- Each soil sample is analyzed for Pu and Am.

3.3 GROUND WATER

A total of 410 ground water stations are sampled quarterly; this includes alluvial wells, bedrock wells, and pre-1986 wells. Approximately one-third of the wells are monitored monthly for water levels.

Each ground water sample is analyzed for CLP, TCL, VOAs, TAL, and metals, as well as the following parameters:

Radiochemical Parameters

Gross Alpha
Gross Beta
Plutonium
Americium
Strontium
Tritium
Uranium
Cesium

Inorganic Parameters

Nitrate/Nitrite
Total Phosphorous
Ortho-Phosphate
Ammonia
TDS
Fluorine
Sulfate
Carbonate
Bicarbonate

Field Parameters

DO
Specific Conductivity
Temperature
Turbidity
pH

Radiochemical Parameters

Inorganic Parameters

Field Parameters

TSS

Total CLP Metals & additional metals

Dissolved CLP & additional metals

Cyanide

CLP Volatile Organic Compounds

SECTION 4. CONTRACTOR/SUBCONTRACTOR IDENTIFICATION

Contractors and subcontractors being used on the RFP ER Program and the work they are performing are identified on the following list as required by paragraph 13 of the IAG.

<u>OU</u>	<u>Project</u>	<u>Subcontractor</u>	<u>Sub-Subcontractor</u>	<u>Work Description</u>	<u>Start Date</u>
1	Assessment	Ebasco	Dames & Moore Stoller Corp.	OU 1 RFI/RI field work (drilling, well development/ completion, sampling) and RI report and CMS/FS report	Apr 91
1	Remediation	Bruner		OU 1 IRA ion exchange system	Feb 91
1	Remediation	E.T. LaFore		Installation of Phase II-A treatment system equipment for OU 1 IRA	Jun 91
1	Remediation	IT Corporation	CH2MHill/OMT	B-891 Treatment System Operations	
1	Remediation	Jennison		Construct Phase II-B French drain at OU 1 IRA	Aug 91
1	Remediation	P.S.I.		OU 1 IRA UV/Peroxide System	Aug 91
2	Assessment	Woodward-Clyde	Ogden	OU 2 RFI/RI Work Plan (alluvial and bedrock) and RI field work (drilling, well completion/development)	Sep 90
2	Assessment	Ebasco	S.M. Stoller Corp.	Environmental Evaluation	Feb 91
2	Remediation	Stearns Rogers		Performance Specification for Chemical precipitation/membrane/filtration system for South Walnut Creek Phase of OU 2 IRA	Jun 91
2	Remediation	TBD		Mfg/Install chemical precipitation/ filtration unit for South Walnut Creek Phase of OU 2 IRA	Dec 91
3	Assessment	IT Corporation	CH2M Hill	OU 3 Field Work and RI Report	Apr 92
3	Assessment	IT Corporation	USGS	OU 3 Reservoir Sediment Sampling and Report	Aug 92
3	Assessment	MRI		Wind Tunnel/Soil Resuspension Study	Aug 92
4	Assessment	Applied Environment		Implement the Phase I RFI/RI Work Plan, includes drilling, sampling radiation surveys, etc.	Aug 92

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<u>OU</u>	<u>Project</u>	<u>Subcontractor</u>	<u>Sub-Subcontractor</u>	<u>Work Description</u>	<u>Start Date</u>
5	Assessment	ASI	Dames & Moore Blackhawk Geoscience Walsh & Assoc. Fugro Geosciences Lagne Envir. Service Utility Mgmt. Service S.M. Stoller Adv. Terra Testing	Implementation of OU 5 Work Plan (excluding EE)	Jun 92
5	Assessment	S.M. Stoller		Implementation of EE section of OU 5 Work Plan	Sep 92
6	Assessment	Woodward Clyde	Lane, Ogden Geo Environmental	OU 6 RF/RI Work Plan and Quality Assurance Addendum	Feb 90
6	Assessment	S.M. Stoller		EE	Sep 92
7	Assessment	S.M. Stoller	Walsh & Assoc.	OU 7 RF/RI Work Plan including EE Plan and QA Addendum	Apr 90
11	Assessment			OU 11 RF/RI Work Plan including EE Plan and QA Addendum	Oct. 91
15	Assessment	S.M. Stoller		OU 15 RF/RI Work Plan	
SW	HRR	IT Corporation	Doty & Assoc.	Prepare HRR	Feb 91
SW	PCB Assess.	Ebasco	Stoller Corporation	Prepare PCB Assessment Report	Jan 92
SW	Adm. Record	QuantaLex		Maintain IAG Administrative Record	Oct 90
SW	Geo. Char.	ASI		Geologic Characterization, Data Base, and graphics	Feb 90
SW	Monitoring	IT Corporation		Analytical Services for ground water, surface water, and sediment	Jul 90
SW	PPCD	Ebasco		PPCD	Jun 90
SW	QA	SAIC		Develop and implement QA program and field operations oversight	Dec 90
PM	Support	Ebasco	Stoller Corporation	Program Management Support	Feb 90

ACRONYMS

AGTL	Above Ground Transfer Line
ARAR	Applicable or Relevant and Appropriate Requirements
BBB	Bulk Back Bins
BOA	Basic Ordering Agreement
BRAP	Baseline Risk Assessment Plan
CAD	Corrective Active Decision
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CLP	Contract Laboratory Program
CMS	Corrective Measures Study
COC	Contaminant Of Concern
CPT	Cone Penetrometer Testing
CRP	Community Relations Plan
D&D	Decontamination and Disposition
DCN	Document Change Notice
DLRP	Discharge Limits Radionuclides Plan
DOE	Department of Energy
E&WM	Environmental and Waste Management
EA	Environmental Assessment
EE	Environmental Evaluation
EM	Environmental Management
EPA	Environmental Protection Agency
ER	Environmental Restoration
FPM	Facilities Project Management
FS	Feasibility Study
FSP	Field Study Plan
FTU	Field Treatability Unit
GAC	Granular Activated Carbon
gpm	Gallons per minute
GPR	Ground Penetrating Radar
HHRA	Human Health Risk Assessment
HPGe	High Purity Germanium
HRR	Historical Release Report
HSP	Health and Safety Plan
IAG	Interagency Agreement
IHSS	Individual Hazardous Substance Site
IM	Interim Measure
IRA	Interim Remedial Action
IRAP	Interim Remedial Action Plan
ITS	Interceptor Trench System
IWCP	Integrated Work Control Package
LL	Low-level
MOU	Memorandum Of Understanding
MTS	Master Task Subcontract
NEPA	National Environmental Policy Act
NTS	Nevada Test Site
OPWL	Original Process Waste Line
OU	Operable Unit
PA	Protected Area
pCi/g	Picocuries per gram

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PP	Proposed Plan
PPCD	Plan for Prevention of Contaminant Dispersion
PPE	Personal Protective Equipment
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QAT	Quality Action Team
RCA	Residue Compliance Agreement
RCRA	Resource Conservation and Recovery Act
RFEDS	Rocky Flats Environmental Database System
RFI	RCRA Facilities Investigation
RFP	Rocky Flats Plant
RI	Remedial Investigation
ROD	Record of Decision
RS	Responsiveness Summary
SAR	Safety Analysis Review
SID	South Interceptor Ditch
SO	Systems Operation
SOP	Standard Operating Procedure
SOW	Statement of Work
SP	Solar Ponds
S&S	Safeguards & Security
TAL	Target Analyte List
TCL	Target Compound List
TDS	Total Dissolved Solids
TM	Technical Memorandum
TMST	Temporary Modular Storage Tank
TRG	Technical Review Group
TRU	Transuranic
TSS	Total Suspended Solids
VOA	Volatile Organic Analyte
VOC	Volatile Organic Compound
WBS	Work Breakdown Structure
WS	Waste Storage